This Page Is Inserted by IFW Operations and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

As rescanning documents will not correct images, Please do not report the images to the Image Problem Mailbox.

(12)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3: 05.12.2001 Bulletin 2001/49

(51) Int Cl.7: **H04B 1/707**, H04L 7/033

- (43) Date of publication A2: 07.05.1997 Bulletin 1997/19
- (21) Application number: 96117432.3
- (22) Date of filing: 30.10.1996
- (84) Designated Contracting States: **DE FR GB**
- (30) Priority: 02.11.1995 JP 31002195
- (71) Applicants:
 - Yozan inc.
 Tokyo 155-0031 (JP)
 - NTT MOBILE COMMUNICATIONS NETWORK INC.
 Minato-ku, Tokyo 105-8436 (JP)
- (72) Inventors:
 - Shou, Guoliang c/o Yozan Inc.
 Setagaya-ku, Tokyo 155, (JP)

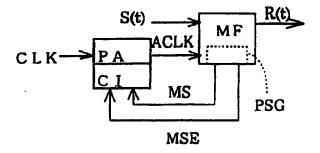
- Zhou, Changming c/o Yozan Inc.
 Setagaya-ku, Tokyo 155, (JP)
- Yamamoto, Makoto c/o Yozan inc.
 Setagaya-ku, Tokyo 155 (JP)
- Takatori, Sunao c/o Yozan Inc.
 Setagay-ku, Tokyo 155 (JP)
- Sawahashi, Mamoru 1-59-17 Tomiokanishi, Yokohama-shi, Kanagawa 236, (JP)
- Adachi, Fumiyuki
 Yokohama-shi, Kanagawa 236 (JP)
- (74) Representative: Grünecker, Kinkeldey, Stockmair & Schwanhäusser Anwaltssozietät Maximilianstrasse 58 80538 München (DE)

(54) Matched filter circuit

(57). The present invention has an object to provide a matched filter circuit which is possible to synchronize a spreading code with an input signal. A matched filter according to the present invention samples input signal

in response to three clocks from the first to the third shifted by a half cycle of a sampling signal so as to judge whether the sampling clock is ahead or behind of the input signal according to signs of input signal sampled. One clock is selected to be the sampling clock.

Fig. 1



EP 0 772 305 A3



EUROPEAN SEARCH REPORT

Application Number EP 96 11 7432

	DOCUMENTS CONSIDER		·	
ategory	Citation of document with indica of relevant passage	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CL6)	
Y	POVEY G J R ET AL: "S FILTER RECEIVER DESIGN SPECTRUM COMMUNICATION ELECTRONICS AND COMMUN JOURNAL, INSTITUTION O ENGINEERS, LONDON, GB, vol. 5, no. 2, 1 April pages 59-64, XP0003638 ISSN: 0954-0695 * page 59, left-hand of * page 62, middle colu	1-6	H04B1/707 H04L7/033	
Y	US 4 789 996 A (BUTCHE 6 December 1988 (1988- * column 1, line 14 - * column 1, line 41 - * column 10, line 8 - * column 10, line 13; * figure 4A *	-12-06) line 20 * line 43 * line 9 *	1-6	
	US 4 535 459 A (HOGGE 13 August 1985 (1985-0 * figure 3 * * figure 1 *	1-6	TECHNICAL FIELDS SEARCHED (Im.Cl.6) H04B H04L	
	US 5 034 967 A (COX WI 23 July 1991 (1991-07- * column 1, line 15 - * column 1, line 47 -	2,4	G066 G11C	
1	US 4 151 485 A (LAFRAT 24 April 1979 (1979-04 * figure 1 *		3	
	The present search report has been Place of search	Date of completion of the essuch		Examinor
	MUNICH	16 October 2001	Gig	lietto, M
X : partic Y : partic docum A : techn O : non-	TEGORY OF CITED DOCUMENTS cutarly relevant if taken alone cutarly relevant if combined with another ment of the same category vological background written disclosure mediate document	T : theory or princip E : earlier partent do after the filing D : document olted L : document olted & : member of the s document	curnent, but publis te in the application for other reasons	shed on, or

EPO FORM 1503 03.82 (P04C01)



EUROPEAN SEARCH REPORT

Application Number EP 96 11 7432

	CHARLES OF CONSIDER			
Category	Chanon or document with in of relevant pass:	dication, where appropriate, ages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.CL6)
A	PATENT ABSTRACTS OF vol. 018, no. 623 (128 November 1994 (1904) -& JP 06 237148 A (1904) 23 August 1994 (1994) * abstract *	E-1635), 994-11-28) FAKAYAMA:KK),	7–10	
A	PATENT ABSTRACTS OF vol. 018, no. 614 (F 22 November 1994 (19 -& JP 06 231286 A (1 19 August 1994 (1994 * abstract *	P-1830), 994-11-22) FAKAYAMA:KK),	7-10	·
				TECHNICAL FIELDS SEARCHED (Int.Cl.s)
	The present search report has be	en drawn up for all claims	-	
	Place of search	Date of completion of the search		Examiner
	MUNICH	16 October 200		ietto, M
CA' X : partic Y : partic docum A : tecno	FEGORY OF CITED DOCUMENTS using yelevant it taken alone using yelevant it combined with anotherent of the same category singleal background written discourse	T : theory or prin E : earlier patern after the titing r D : document of L : document	ciple underlying the in t document, but publisi	ivention hed on, or

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 96 11 7432

This annex lists the patent territy members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

16-10-2001

Patent document cited in search report		Publication date		Patent family member(s)	Publication date	
US	4789996	Α	06-12-1988	EP NO	0326007 A2 890378 A	02-08-1989 31-07-1989
JS	4535459	Α	13-08-1985	NONE		
JS	5034967		23-07-1991	US AU WO AU WO	5050189 A 4849790 A 9007238 A1 4527589 A 9006022 A1	17-09-1991 10-07-1990 28-06-1990 12-06-1990 31-05-1990
JS	4151485	Α	24-04-1979	NONE		~~~~~~~~~~~~
JP	06237148	Α	23-08-1994	JP	3074632 B2	07-08-2000
)P	06231286	Α	19-08-1994	JP US	2985999 B2 5465064 A	06-12-1999 07-11-1995

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82